Documentation for Tic-tac-toe game.

File : tic-tac-toe.c
Title : Final Project
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Purpose :
The goal of tic-tac-toe is to be the first player to get three in a row on a 3-by-3 grid. I tried to do the project with just stdio.h(Standard input output) header file.

Overall Method :
After compiling the tic-tac-toe.c and executing the compiled file players will be prompted for their names. First player's symbol will be 'X' and the second player symbol will be 'Y'. Then Each player will have to enter a position number shown in the terminal.

Header files :
    stdio.h

Functions :

    board
        Will take an array as a parameter and its used for printing the 3-by-3 grid.

    name
        It will ask the player for name and take input as the name of the player one and player two. And show the players sign X and Y.

    move
        This function checks if the place in the grid is taken or not. This function also up updates the array which is used to show the grid.

    marker
        This function takes an int variable as a parameter. Depending on the value it returns the character 'X' or 'Y'.

    winlogic
        This is the most important function. It contains all the winning combinations.

Code Details:

```c
void board(char *array)
{
    printf("\n %c | %c | %c \n", *array, *(array + 1), *(array +
2));
    printf("-----------");
    printf("\n %c | %c | %c \n", *(array + 3), *(array + 4),
*(array + 5));
    printf("-----------");
    printf("\n %c | %c | %c \n", *(array + 6), *(array + 7),
*(array + 8));
}
```

This part is used for printing the grid. It takes an array as a parameter and shows the result array in the simple grid.

```c
char array[20] = "0123456789";
```

This is the array which is used to show in the grid position. And the result :

```
0|1|2
-----------
3|4|5
-----------
6|7|8
```

The array is also showing the index of the array char. That's why 0-9 is used.

```c
void name(char *a, char *b)
{
    printf("Enter the name for player 1 : \n");
    scanf("%s", a);
    printf("Enter the name for second player : \n");
    scanf("%s", b);
    printf("%s is 'X' and %s is 'Y'", a, b);
}
```

This part of code is used to save the player names. This is a simple use of scanf() and printf() function which is a part of stdio.h header file.

```c
void move(char *array, char marker) //done
{
    int temp;
    printf("Enter a number to place your marker : ");
    scanf("%d", &temp);
    // it will also have a if else condition to check if the move is taken or not//done
    if (*(array + temp) == 'X' || *(array + temp) == 'Y')
    {
        printf("\n\n\n\n\n\n\nYou are cheating, your move is canceled.\n\n\n\n\n\n\n\n");
    }
    else
    {
        //it will also change the array.(board)//done
        *(array + temp) = marker;
    }
}
```

 The move function takes the array which is used for printing the grid and takes a variable named marker as parameter. It checks if the player is trying to cheat by choosing a selected place or not, If not the function updates the array with the marker.

Marker is another function. Which is given bellow:
char marker(int a)
{
    if (a % 2 == 0)
    {
        return 'X';
    }
    else
    {
        return 'Y';
    }
}

This checks if the parameter number is divisible by two or not. And depending on that it returns a char X or Y.
The winlogic just checks the array if the array's certain char is X or Y. if the certain char is x or y then the x/y is the winner because it will mean that the player is able to place a marker in a row.

The main():
```
    char array[20] = "0123456789"; //this line declares an array that is used for the grid.

    char name1[100];                    // this contains the name for the first player.

    char name2[100];                    // this contains the name for the second player.

    int a = 0;                          //needed for marker(). And this helps to change the symbol.

    int win = 0;              // this is for winning condition.

    name(name1, name2);                 // this calls the name function. Which stores the name of two
                                        // player in name1 and name 2 array.


    board(array);                       // displayed the 3-by-3 grid.


    while (a != 9 && win != 1 && win != 2)
    {
      win = winlogic(array);        // checks winning pattern
      if (win == 1 || win == 2)
      {
        if (win == 1)
        {
          printf("\n%s is winner !\n", name1);
        }
        else
        {
          printf("\n%s is winner !\n", name2);
        }
      }
      else                              // this continues the game.
      {

        char mark = marker(a);
        ++a;
        move(array, mark);
        board(array);
      }
    }

    return 0;
```